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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/389,941 09/03/99 MEYER

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TM02/0809

RINES AND RINES
81 NORTH STATE STREET
CONCORD NH 03301

EXAMINER

LERNER, M

ART UNIT

PAPER NUMBER

2641

DATE MAILED: 08/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/389,941

Applicant(s)

MEYER ET AL.

Examiner

Martin Lerner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 to 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 to 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference sign(s). It is conventional for drawings to contain reference numerals. However, the drawings as submitted do not contain any reference numerals. Correction is required.

Specification

The disclosure is objected to because of the following informalities:

The disclosure is objected to because it contains embedded hyperlinks and/or other forms of browser-executable code. Applicants are required to delete the embedded hyperlinks and/or other forms of browser-executable code. See MPEP § 608.01. Embedded hyperlinks are found: On page 2, third line from the bottom; On page 3, line 3; and In several places on page 20.

On page 3, line 6, the Serial Number of the U.S. Patent Application should be inserted as – 09/389,942 filed 03 September 1999 --.

On page 20, line 5, “me” should be –the--.

Appropriate correction is required.

Information Disclosure Statement

The Information Disclosure Statement filed 17 September 1999 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent.

The Specification cites numerous prior art publications to which attention is directed in this IDS (Paper No. 2), but which are not readily available and may be relevant to examination of the application. Applicants are requested to supply copies of any relevant prior art references which are cited in the Specification and the IDS (Paper No. 2).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1 to 6, 10 to 17, 19 to 26 and 30 to 33 are rejected under 35 U.S.C. 102(e) as being anticipated by *Chen et al.* ('347).

Regarding independent claims 1 and 31, *Chen et al.* ('347) discloses a method for embedding watermark signals into a digital media file, comprising:

“encoding the compressed digital media file as a set of coefficient representations of the pre-prepared media file information” – host signal 101 may be pre-processed in any of a variety of ways, such as being transformed, encoded, encrypted, smoothed, or interleaved; a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); implicitly, a discrete cosine (or other) transformation produces “a set of coefficient representations” of an image, and JPEG or MPEG compression encodes an image as a “compressed digital media file”;

“embedding portions of the supplemental digital data at selected coefficients to produce a media file [stream] containing such embedded data for enabling user decoding and playback of both the pre-prepared media file information and the embedded supplemental data” – information embedder 201 embeds the watermark signal 102 (“supplemental digital data”) in host signal 101 (column 16, line 62 to column 17, line 50: Figures 1 and 2); host signal 101 may be an audio signal 360 which is played back by receiver 125, and watermark signal 102 is reconstructed (“played back”) by information extracting computer system 110B (column 16, lines 22 to 41: Figure 1: 106

and Figure 2); in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Regarding independent claims 2, 21 and 32, *Chen et al.* ('347) discloses a system and method for embedding watermark signals into a digital media file, comprising:

"transforming the media file [stream] into encoded sets of frequency-domain coefficient representations of the pre-prepared media file information and compressing the file" – host signal 101 may be pre-processed in any of a variety of ways, such as being transformed, encoded, encrypted, smoothed, or interleaved; a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); implicitly, a discrete cosine (or other) transformation produces "a set of frequency-domain coefficient representations" of an image, and JPEG or MPEG compression compresses the file;

"selecting predetermined coefficient sets" – in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation

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(LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

"embedding bits of the supplemental digital data at selected coefficients to produce a supplemental data file containing such embedded data for enabling user decoding and playback of both the pre-prepared media file information and the embedded supplemental data" -- information embedder 201 embeds the watermark signal 102 ("supplemental digital data") in host signal 101 (column 16, line 62 to column 17, line 50: Figures 1 and 2); host signal 101 may be an audio signal 360 which is played back by receiver 125, and watermark signal 102 is reconstructed ("played back") by information extracting computer system 110B (column 16, lines 22 to 41: Figure 1: 106 and Figure 2).

Regarding claim 3, *Chen et al.* ('347) discloses a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1).

Regarding claims 4 to 5, 24 to 25 and 33, *Chen et al.* ('347) discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing

the low-bit modulation (LBM) quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B); typically, quantization values 520 are regularly and evenly spaced by a "step size" of distance $\Delta/2$ apart ("regular intervals") (column 29, lines 6 to 30: Figure 5A).

Regarding claims 6 and 26, *Chen et al. ('347)* discloses a discrete cosine (or other) transformation, which implicitly produces frequency-domain coefficients.

Regarding claims 10 and 30, *Chen et al. ('347)* implies that embedding computer system 110A and extracting computer system 110B are identical to ensure that the embedding and extracting processes are reversible ("backward compatibility")(column 13, line 40 to column 14, line 2: Figure 1).

Regarding claim 11, *Chen et al. ('347)* discloses that digital watermarking is a steganographic process (column 1, lines 28 to 33); digital audio signals implicitly produce a "bit stream"; in some embodiments, the dithered quantization values to which information embedder 201 changes selected values of the host signal are those that are closest to the host-signal values, thereby satisfying one or more distortion criteria ("produce minimal effects in the perception")(column 12, lines 15 to 19).

Regarding claim 12, *Chen et al. ('347)* discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) ("least significant bit") quantization value; only quantization

values at designated quantization intervals (“selected coefficients”) are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Regarding claim 13, *Chen et al.* ('347) discloses a number of embodiments for digital watermarking in Figures 3B to 3D; in Figure 3B, a watermark signal 102B is first applied to only part of an audio signal 360B2, and then watermark signal 102B is embedded in host signal 101B by information embedder 201; similarly, in Figure 3D, a watermark signal 102D is first applied to supplemental signal 362D, and then watermark signal 102D is embedded in host signal 101D by information embedder 201 (column 18, line 15 to column 22, line 60: Figures 3B to 3D).

Regarding claim 14, *Chen et al.* ('347) discloses that digital watermarking is a steganographic process (column 1, lines 28 to 33); digital audio signals implicitly produce a “bit stream”; in a Low-Bit Modulation Technique, a watermark is embedded by changing the low-bit modulation (LBM) (“least significant bit”) quantization value; a discrete cosine (or other) transformation implicitly produces “a range of frequencies”.

Regarding claims 15 to 17, 19 to 20, 22 to 23, *Chen et al.* ('347) discloses a process commonly known as discrete cosine transformation may have been applied to a host signal that is an image; other examples of transformations are Fourier, Fourier-Mellin, or Radon, transforms; JPEG or MPEG compression; wavelet transformation; or lapped orthogonal transformation (column 16, line 62 to column 17, line 50: Figure 1); the signal may include video, image, audio,

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x-ray or MRI (column 10, lines 54 to 65); operation of a discrete cosine transformation on an x-ray or MRI signal produces "volumetric data that is compressed using a 3D transformation".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7 to 9 and 27 to 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chen et al.* ('347) in view of *Sandford, II et al.*

Concerning claims 7 and 27, *Chen et al.* ('347) does not expressly disclose embedding bits of data by computing the parity of the least-significant bit of the group of coefficients. However, *Sandford, II et al.* teaches a related method of compression embedding auxiliary information into a digital representation of host data, and suggests a technique by Upham to modify or manipulate parity of the quantizer output to add information. (Column 3, Lines 26 to 43) It would have been obvious to utilize the parity modifying technique cited by *Sandford, II et al.* in the similar watermarking method of *Chen et al.* ('347) because it is suggested that modification of quantizer parity

can be accomplished without disturbing the statistical properties of the signal.
(Column 14, Lines 22 to 31)

Concerning claims 8 and 28, *Chen et al.* ('347) discloses a Low-Bit Modulation Technique, where a watermark is embedded by changing the low-bit modulation (LBM) ("least significant bit") quantization value; only quantization values at designated quantization intervals ("selected coefficients") are changed (column 29, line 31 to column 30, line 32: Figure 5B).

Concerning claims 9 and 29, *Chen et al.* ('347) discloses that dithered quantization values to which information embedder 201 changes selected values of the host signal are those that are closest to the host-signal values, thereby satisfying one or more distortion criteria ("produce minimal effects in the perception")(column 12, lines 15 to 19); also, *Sandford, II et al.* suggests that modification of quantizer parity can be accomplished without disturbing the statistical properties of the signal (column 14, lines 22 to 31).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chen et al.* ('347) in view of *Qi et al.*

Chen et al. ('347) omits spline data with Bezier curves. However, *Qi et al.* provides evidence that Bezier splines have great potential use in computer-aided mammogram diagnosis. (See Abstract) It would have been obvious to one of ordinary skill in the art to apply Bezier splines to the x-ray or MRI signal of *Chen et al.* ('347) (column 10, lines 54 to 65) because *Qi et al.* teaches that

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Bezier splines have great potential use in computer-aided mammogram diagnosis.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moskowitz et al., Lee and Won, Lee and Chen, Wu et al. and Cedric et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-9064. The examiner can normally be reached on 9:30 AM to 6:00 PM Monday to Friday.

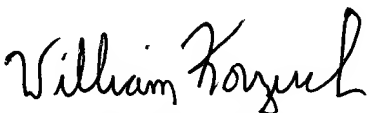
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-9508 for regular communications and (703) 305-9508 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



ml
July 30, 2001



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